Comments Sought on Health Care Delivery Elements of National Broadband Plan
NBP Public Notice #17
GN Docket Nos. 09-47, 09-51, 09-137
WC Docket No, 02-60

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1. **IT Infrastructure to Support Healthcare Delivery.** Mapping the current state of internet connectivity is necessary to understand the extent of the gaps in the current connectivity. We seek to better understand the countrywide connectivity of the following delivery settings:

    a. Hospitals
    b. Community health clinics and outpatient centers
    c. Physician offices
    d. Long-term care facilities
    e. Home
    f. Emergency Medical Responders
    g. Indian Health Service, Dept. of Health and Human Services, and other health service providers on tribal lands

    For each delivery setting we seek to know:
    i.   What internet connectivity types (dsl, cable, fiber-to-the-premise, wireless, etc.) and speeds (in mbps) support each of the above delivery settings across the U.S.? What percentage of each delivery setting is served by each type and speed of connectivity? We welcome detailed analyses of the state of connectivity across each delivery setting.
    ii. How might internet connectivity vary by delivery setting size or location (rural versus urban)? What are other contributing factors to variations in delivery setting connectivity? We welcome detailed analyses of variations in connectivity by delivery setting.
    iii. What is the prevalence of private fiber networks among these delivery settings? We welcome detailed analyses of private fiber networks in support of healthcare delivery.
    iv. What criteria does a delivery setting use to determine sufficient connectivity levels in terms of peak and average transmission rates, guaranteed minimum bandwidth, latency, jitter, reliability, etc.? What is the marginal value of improving IT infrastructure based on the previous criteria? We welcome detailed analyses of the decision criteria/thresholds and costs/benefits used by delivery settings to make IT infrastructure decisions.
    v.   What issues might exist in transiting multiple networks in ensuring the quality of service parameters identified in (iv)?
    vi. How might a delivery setting leverage its IT infrastructure to support the health IT needs of the local community? We welcome detailed analyses of the extension

h. Home
    i.   What internet connectivity speed (in mbps) should be available to individuals in their homes to effectively manage their health and communicate with healthcare practitioners? We welcome detailed analyses of clinical and financial outcomes for varying levels of broadband connectivity to the home.
    ii. What wireless internet connectivity speed (in mbps) should be available to individuals throughout their communities to effectively manage their health and communicate with healthcare practitioners? We welcome detailed analyses of clinical and financial outcomes for varying levels of wireless broadband connectivity.
    iii. What reliability and performance requirements, if any, might be required to extend health care services to the end user.

2. **Connectivity Requirements to Support Health IT Applications.** Multiple health IT applications are being deployed using public and private communications networks. We seek to better understand the underlying IT infrastructure necessary to support successful implementation of current and emerging health IT applications, including:

    a. Electronic health records
    b. Real time video for Telehealth consultations and diagnoses
    c. Remote patient monitoring systems
    d. Mobile and other portable remote monitoring systems
    e. Other applications that enable or cause advanced healthcare delivery

    For each relevant health IT application we seek to know:
    i.   What are the specific network requirements (e.g., transmission speeds, minimum guaranteed bandwidths, latency, jitter, reliability, coverage, others)? How might these differ based upon the content (e.g., text, image, or video) of the application? We welcome detailed network requirement analyses for pertinent applications.
    ii. What issues may exist in ensuring that requirements in (i) are met on an end-to-end basis? Can such requirements easily be met across multiple service provider networks?
    iii. What communication services are key to supporting these healthcare applications? For example, in a total architectural view, what role do services such as Internet Service, LAN Interconnect services, e.g. WAN Ethernet services, enterprise and other services play in the delivery of healthcare applications? How does placement within specific demographic areas (e.g., urban suburban, rural) affect these choices?
    iv. How might new application infrastructures such as Cloud Computing affect architectures for supporting health IT applications? What is the relative value of hosted (ASP, Software as a Service, or Cloud Computing) solutions versus client-based offerings? How does solution type affect connectivity requirements in (i)? We welcome detailed analyses of the relative merits and network requirements for hosted and client-based offerings.
    v.   How might network requirements in (i) change (increase) to support application use across different delivery settings (e.g., solo physician practice versus five-physician practice versus clinic with 10 or more physicians)? How does concurrent application usage within a delivery setting affect network requirements? We welcome detailed analyses of the network requirements

necessary to support both discrete health IT applications and combinations of health IT applications for increasing numbers of users within a delivery setting.

vi. How might application usage by individuals (patients and doctors) both in their homes and on a mobile basis affect network requirements? How might these requirements vary by the content (e.g., text, image, or video) of the application? We welcome detailed network requirement analyses for health IT applications in both home and mobile settings.

vii. Which communications technologies and networks meet the requirements? Which are appropriate for the application being discussed? If this varies by content, why does it vary and in what way? We welcome detailed analyses of the costs, relative performance and benefits of alternative network technologies currently employed by existing applications.

viii. Are current commercial communications networks adequate for deploying the application in question broadly across the country? If not, what are specific examples of the ways in which current networks are inadequate? How could current networks be improved to make them adequate, and at what cost? If this adequacy varies by content of the application, why does it vary and in what way?

ix. How suitable are commercial wireless networks for health IT applications? We welcome detailed comparisons of the suitability and reliability of commercial wireless networks and other types of networks.

x. How might the business or value chain model of the healthcare industry influence or affect the communications and application architectures used to support healthcare services?

xi. What role might health IT applications play in local and national emergency preparedness (e.g., natural disaster, pandemic, bioterrorist attack, etc.)? What connectivity types and speeds across delivery settings would be needed to ensure public safety in times of crisis? We welcome detailed analyses of the role of various health IT applications in promoting public safety.

xii. What should be the role of the federal government in ensuring the connectivity necessary to enable promising health IT applications? We welcome specific policy suggestions, as well as cost/benefit analyses and tracking mechanisms.

3. **Health IT Value Capture & Use Cases.** Various health IT applications enabled by connectivity have been implemented in both public and private system settings. We seek to better understand the value case for health IT applications from real examples:

   a. What combination(s) of health IT applications were implemented? What is the incremental value of adding applications and/or upgrading applications? For any given combination(s), we welcome detailed marginal costs and marginal benefits (financial and health) analyses of the applications chosen.

   b. Where is application value captured? We seek to quantify the amount of healthcare cost reduction that may be attributed to availability of the following data types: text, image, and video (e.g., EHRs containing only text might offer X savings; EHRs with text plus images might offer 1.2X savings; EHRs with text plus images plus two-way video doctor-to-doctor consultation might offer 2X savings; 24/7 remote monitoring might offer 2.5X savings; etc.). How might the availability of these data elements and combinations thereof account for cost reduction and affect health outcomes? We welcome detailed analyses of the cost and health impacts of varying data types.

   c. What was the network impact of installing health IT applications? We welcome studies of broadband usage before and after a health IT implementation.

   d. Were connectivity infrastructure investments made? If so, we welcome detailed analyses of the cost of improvement as well as the specific technological upgrades.

  e. Was outcome data collected post implementation? If so, we welcome detailed analyses of cost savings and clinical outcomes data.

  f. Were there differences in application adoption across personnel? If so, we welcome detailed analyses of adoption variation.

4. **Health IT Use Drivers & Barriers.** There is wide disparity across healthcare delivery settings in both utilization of available internet connectivity and adoption of health IT applications. We seek to better understand the drivers and barriers under both situations for each delivery setting (hospitals, clinics, physician offices, long-term care facilities, etc.), and individuals in their homes and on a mobile basis. We welcome quantitative analyses and anecdotal evidence of drivers and barriers (including, private insurance/government reimbursement for care provided, economic, socio-demographic, technological, educational/training, policy, etc. conditions).

  a. What are the primary drivers and barriers to taking advantage of available internet connectivity across delivery settings?

  b. What in the healthcare sector may be a disincentive to invest in broadband services (particularly for telemedicine)?

  c. What are the primary drivers and barriers to adoption across delivery settings for each application type:

    i. Electronic health records
    ii. Real time video for Telehealth consultations and diagnoses
    iii. Remote patient monitoring systems
    iv. Mobile and other portable remote monitoring systems
    v. Other applications that enable or cause advanced healthcare delivery

  d. For each application above, does connectivity have an effect on Health IT adoption? We welcome analyses outlining connectivity thresholds that both promote and hinder adoption.

  e. Reimbursement issues are frequently cited as a barrier to adoption of health IT applications. We welcome detailed quantitative analyses and examples of non-adoption specific to reimbursement issues.

  f. What are the barriers to telehealth infrastructure build out for the Indian Health Service? Are the barriers the same for the direct service clinics and hospitals versus the self governance tribal areas? Do the barriers differ for the Alaska Native tribes versus for the tribes in the lower 48 states?

5. **Data Security in Health IT.** Protection of personal health information (PHI) is required under HIPAA. We seek to better understand the measures in place to ensure health data security, the potential for breaches, and the network requirements to improve security.

  a. What are the major security challenges?

  b. What level of health data breaches exist in the current system?

  c. What additional network demands do security efforts impose on the system?

  d. How might the means by which patients obtain their medical information and populate Personal Health Records (PHRs) be simplified?

6. **Universal Service Rural Health Care Support Mechanism and Rural Health Care Pilot Program.**

  a. <u>Questions Relating to the Rural Health Care Support Mechanism:</u>

i. Nationwide Connectivity. How does the existing rural health care support mechanism affect nationwide connectivity? Are there instances where the discount structure of the existing rural health care support mechanism provides incentives for rural health care providers to maintain slower, more expensive connections, rather than purchasing faster connections that may be less expensive? Provide specific examples of ways in which the mechanism may impact how health care providers choose broadband service offerings.

There should not be incentives for using slower more expensive connections. However, HCPs may look only at the limited number of default values for support for Frame Relay and T-1 services; limiting their selections to those options. The safe harbor provision provides for the using functional equivalent services for services up to 50M. However, the rural HCP must be able to document an urban rate for a similar service. The result, more effective broadband services not selected or services installed but the HCP fails to request funding.

As an example of a T-1 connection between two locations (hospital to clinic) cost $810/ month with USF support of $620/mo a net cost of $190. Replacing this with a 3Meg Metro Ethernet connection the cost was $600 per month with no USF support; therefore the hospital paid the full $600, as there was not a comparable lower priced 3M service.

ii. Impediments. The Commission has modified various aspects of the rural health care support mechanism over the years, but demand for funding remains below the authorized funding cap of $400 million per funding year. For funding year 2008, disbursements under the rural health care support mechanism were approximately $60 million, or 15 percent of the total $400 million authorized annually for the program.[8] Are there specific aspects of the current support mechanism design that suppress demand for funding?

URBAN RATES
The major impediments to funding more services are urban rates. Urban Rates provided by USAC per state are limited to a few services; USAC provides rates for T-1 and Frame Relay.

There are no rates for basic voice services: telephone lines (POTs Lines), Channelized T-1, & ISDN-PRI. The majority of rural hospitals and clinics have local phone services which are more expensive than comparable urban services. This simple addition to USAC urban rates would benefit the majority of HCPs in the program.

Also, the newest broadband data services: MPLS and Metro Ethernet do not have default urban rates. These services provide a spectrum of speeds from 1Meg to 1 Gig. The lack of USAC provided urban rates places a major burden on HCPs to come up with an equivalent service for comparison.

The Alaska PSC provides HCPs in the state urban rates for: POTs Lines T-1, DS-3, multiplexing, MPLS, ENET (1/2Meg-1Gig), FR, COT, 2W&4W, definitely saving the HCPs time, effort and snagging more $.

COMPETITIVE URBAN RATES

The urban rates provide by USAC currently are the lowest available tariff rates. In this competitive market, the actual rates for services provided by the ILEC may average 10-30% less than the tariff rate (window sticker).

Additional resources need to be provided to seek out the true Urban Rates in large cities or at least the largest city in the state.

    iii.   Telehealth and Telemedicine Leveraging. Are there specific ways the Commission could better leverage the benefits of the rural health care support mechanism through coordination with other federal, state, local, tribal, or non-profit programs that seek to advance broadband deployment or the efficient use of telehealth and telemedicine?

Rural Health Care support is designed to assist in the cost of telecommunication and Internet expenses. However, there is a major investment in equipment required. I believe the USDA could assist in coordinating additional funding to provide a complete solution.

    iv.   Role of Universal Service Support. What role should federal universal service support have in the funding of broadband health care networks? For example, the rural health care support mechanism currently provides, to public and non-profit health care providers in rural areas, discounts on the installation and monthly charges for telecommunications and Internet access service used for the provision of health care. What would be the impact on the delivery of health care if the rural health care mechanism supported network backbone only (i.e., infrastructure), or supported the use of telehealth applications?

Backbone Support for a specific entity/project is not required. The interested telecommunication carriers should be able on an open and competitive basis to bid on the requested service. The carriers should be providing services and discounts should be provided. The costs of a segregated network are costly and the carriers should be upgrading facilities for all to share in the rural areas.

    v.   Urban Areas. Some commenters suggest that the Commission should replace the current discounts available to rural health care providers with an across-the-board discount on connectivity for all health care providers, regardless of whether they are rural or urban. How would such a change impact demand for funding? How would rural areas be impacted by such a change?

There should not be support for discounts to urban health care providers. Across the board discounts are the easiest. However, a flat percentage discount would result in an unfair distribution of costs. Currently, the urban rural difference sets a specific USF Co-Pay amount per service. The unusually high costs in excess of the Urban Rate are paid.

As an example, a 50 mile DS-3 service cost is $5,000 per month. The urban amount is $1500 per month, support is $3500. The equivalent flat rate would need to be 70%. If support was limited to 50%, the hospital would pay $1000 more per month.

A Local DS-3 in a rural area with 0 miles is $1800 per month. Current support is $300/month. At 50% support, the final cost is $900 per month, must less than in the competitive urban areas.

The solution is to build on the current solid foundation by increasing the number of urban rates provided by USAC, provide the true (market driven) cost of urban rates to create a truly level paying field for rural hospitals and clinics.

URBAN AREA DEFINITION

The definition of an eligible rural area should be based 100% on the proximity to an urban city. It should not include the census bureau's concept of Metropolitan Service Areas and associated movement of people between locations. Cornell, Wisconsin (www.cityofcornell.com) is a prime example. 1500 people located 45 miles from the urban area of Eau Claire, Wisconsin. 1500 people is not an urban area. But it appears they have to drive to the big city to work because farming is not providing enough support in these times. The additional punishment is the clinic in town is not eligible for USF support. The MSA for Madison, Wisconsin is also increasing to cover 3 counties. State government jobs are secure and have benefits needed by our citizens in rural areas. However, the families of these state workers continue to live in these small communities and the USF program should help maintain health care at a local level in these towns.

The FCC should modify the eligible rural areas to be any area more than the state Standard Urban Distance (SUD) from the center of cities with populations of more than 50,000 people. Each state has a SUD and with the introduction of GPS coordinates (Google earth) would simplify the process to determine rural areas.

vi. Tribal Areas. To what extent do the universal service rural health care support mechanism as well as the rural health care pilot program currently support tribal telehealth networks or Indian Health Service telehealth networks? Are there modifications to the existing rural health care support mechanism as well as to the existing Indian Health Service or other health care systems serving tribal lands that would increase broadband deployment to or adoption by health care providers in tribal lands? Please provide specific data or other information relating to the potential impact of such changes and estimates of how much additional universal service support would be disbursed if the proposed tribal area modifications were implemented.

vii. Specific Changes to the Program. Are there other modifications to the existing rural health care support mechanism that would increase broadband deployment to or adoption by health care providers? Please provide specific data or other information relating to the potential impact of such changes and estimates of how much additional universal service support would be disbursed if the modifications were implemented.

In Wisconsin, Charter Communication, CenturyLink, and Mosaic, have deployed Broadband Networks for health care providers with Ethernet hand offs at 10M, 50M and above on point to point and point to hub basis. On average, the cost per bandwidth is approximately $150 per 1M of bandwidth provided from the main health care provider site to the remote clinic. Traditional T-1 point to point circuits

average $900 per circuit or $600 per 1M of bandwidth. The use of dedicated broadband connections allow for extensive use of VoIP linking all remote locations into a single unified network. The network connection is secure and highly reliable.

USF support does provide a level playing field from viewed from the cost per Megabit of bandwidth with the HCP Co-Pay portion averaging $80 per 1M for both ENET and traditional T-1.
High speed Ethernet connections are fast becoming the most popular and cost effective method to connect hospitals and clinics. Speeds range from 10M to 1Gig and are provided by the ILEC under the NECA tariff for these offerings. A major problem facing health care networks is the ability to connect all their remote locations in a cost effective.

Connecting dissimilar networks almost always entails the use of traditional TDM facilities (DS-1/DS-3) to provide the handoffs. There is a need to help provide a common handoff point that is cost effective and can provide connections that are secure between carriers.

The ability to modify the current limited point to point T-1 networks into Ethernet Virtual LANs will not require significantly more support dollars as noted from the example above., if cost effective handoffs can be found.

There is a significant financial reason to use Internet to link low volume clinic locations to main health care centers. Because of the low cost and ease of the Internet via creating a VPN, support should be increased from 25% to 50%.

b. Questions Relating to the Pilot Program:

   i. Nationwide Connectivity. How does the Pilot Program affect nationwide connectivity? Provide specific examples of ways in which the program may impact how health care providers choose broadband service offerings.
   ii. Impediments. Are there specific programmatic requirements in the Pilot Program that make it difficult for entities to realize the full potential of the program?
   iii. Telehealth and Telemedicine Leveraging. Are there specific ways the Commission could better leverage the benefits of the Pilot Program through coordination with other federal, state, local, tribal, or non-profit programs that seek to advance deployment or the efficient use of telehealth and telemedicine?
   iv. Program Evaluation. What metrics should the Commission use in evaluating the Pilot Program?

Evaluation should be based on financial costs and benefits. The actual cost of the service verses the cost of the service and associated support based on the current program support models. The monthly equivalent cost per 1M of connectivity on the network and to network resources. Calculate the percentage of the facility in use.

   v. Extension of the Pilot Program. The current Pilot Program is scheduled to end after funding year 2009, on June 30, 2010, and existing Pilot Program participants must file all of their funding commitment requests by that date.[9] Should the Commission seek additional applications after the current Pilot

Program ends? If so, what selection criteria should the Commission use in selecting new applications? For example, should support be limited to broadband healthcare networks in rural, insular, tribal, and/or underserved areas? Should the Commission change any of the requirements for participation in the Pilot Program?

vi. To the extent commenters suggest modifications to the Pilot Program, please provide specific data or other information relating to the potential impact of such changes, and estimates of how many additional projects would participate and how much additional universal service support would be disbursed if the modifications were implemented.

This matter shall be treated as a "permit-but-disclose" proceeding in accordance with the Commission's *ex parte* rules. *See* 47 C.F.R. §§ 1.1200, 1.1206. Persons making oral *ex parte* presentations are reminded that memoranda summarizing the presentations must contain summaries of the substance of the presentations and not merely a listing of the subjects discussed. More than a one- or two-sentence description of the views and arguments presented generally is required. *See* 47 C.F.R. § 1.1206(b). Other rules pertaining to oral and written *ex parte* presentations in permit-but-disclose proceedings are set forth in section 1.1206(b) of the Commission's rules, 47 C.F.R. § 1.1206(b).

All comments should refer to GN Docket Nos. 09-47, 09-51, and 09-137; and WC Docket No. 02-60. Comments in response to this Public Notice will also be filed in appropriate pending proceedings. Please title comments responsive to this Notice as "Comments—NBP Public Notice # 17." Further, we strongly encourage parties to develop responses to this Notice that adhere to the organization and structure of the questions in this Notice.

Comments may be filed using (1) the Commission's Electronic Comment Filing System (ECFS), (2) the Federal Government's eRulemaking Portal, or (3) by filing paper copies.[10] Comments can be filed through the Commission's ECFS filing interface located at the following Internet address: http://www.fcc.gov/cgb/ecfs/. Comments can also be filed via the Federal eRulemaking Portal: http://www.regulations.gov.[11] Generally, only one copy of an electronic submission must be filed. In completing the transmittal screen, commenters should include their full name, U.S. Postal Service mailing address, and the applicable docket or rulemaking number. Parties who choose to file by paper must file an original and four copies of each filing.

Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail (although we continue to experience delays in receiving U.S. Postal Service mail). All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.

- The Commission's contractor will receive hand-delivered or messenger-delivered paper filings for the Commission's Secretary at 236 Massachusetts Avenue, N.E., Suite 110,

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[10] *See* Electronic Filing of Documents in Rulemaking Proceedings, 63 Fed. Reg. 24121 (1998).

[11] Filers should follow the instructions provided on the Federal eRulemaking Portal Website for submitting comments.

Washington, D.C. 20002. The filing hours at this location are 8:00 a.m. to 7:00 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes must be disposed of before entering the building.

- Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9300 East Hampton Drive, Capitol Heights, MD 20743.

- U.S. Postal Service first-class mail, Express Mail, and Priority Mail should be addressed to 445 12th Street, S.W., Washington, D.C. 20554.

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For further information about this Public Notice, please contact Ernesto Beckford at (202) 418-1523.

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